

WHAT IS CLAIMED IS:

1. A display device for displaying an image according to input image data that is digital data, said display device comprising:

a light source for producing light;

light-transmitting filters for separating the light from said light source into at least four kinds of light including white light, said light-transmitting filters including a white-transmitting filter for transmitting white light and non-white transmitting filters;

a light valve for projecting each kind of light from said light-transmitting filters onto a screen;

said white light-transmitting filter being used to display information corresponding to lower-order bits of said digital data; and

said non-white light-transmitting filters being used to display information corresponding to higher-order bits of said digital data.

2. The display device of claim 1, wherein said white light-transmitting filter has spectral characteristics that are almost flat in the visible range of wavelengths of the light.

3. The display device of claim 1, wherein if a brightness required by the input image data is lower than a given gray level, information is displayed using said white light-transmitting filter or said non-white light-transmitting

filters and if said brightness is higher than said given gray level, information is displayed using only said non-white light-transmitting filters.

4. The display device of claim 1, wherein said light valve is of the reflective type.

5. The display device of claim 1, wherein said light valve is of the transmissive type.

6. The display device of claim 1, wherein a value obtained by integrating the product of spectral transmission factor of said white light-transmitting filter in the visible range and spectral luminous efficiency with respect to wavelength is less than sum of values obtained by integrating the product of spectral transmission factor of each of said non-white light-transmitting filters in the visible range and spectral luminous efficiency with respect to wavelength.

7. The display device of claim 1, wherein brightness created by a first gray level represented via said white light-transmitting filter is lower than brightness created by a first gray level represented via said non-white light-transmitting filters.